slowly in dialysers constructed of vegetable parchment; they can be filtered through a gelatin film under pressure; but experiments show they are rapidly absorbed by the blood-vessels. In other words, though their molecules are large, they are not so large as those of the native proteids.

The walls of the capillaries are membranes possessed of permeabilities approximating those of a film of gelatin, and are relatively, although not absolutely, impermeable to proteids (Starling, *Journ. of Physiol.*, vol. xix. p. 311). If molecular size is the obstacle to proteid absorption from subcutaneous spaces, the same would apply to anti-toxins, for these are substances of great molecular size comparable to proteids.

The practical indication of this in the treatment of snake-bite is to inject the anti-venene intravenously, until the potency of the anti-venomous serum which is at the disposal of the public is greatly enhanced.

W. D. H.

REMARKABLE EFFECT OF THE INDIAN EARTHQUAKE OF JUNE 12, 1897.

A REMARKABLE example of the effect of the Indian earthquake of June 12, 1897, upon railway lines is illustrated by a brilliant photo-etching in the general report of the operations of the Survey of India during the years 1896-97, prepared under the general direction of Major-General C. Strahan, R.E., and recently distributed. The picture (Fig. 1), which represents the Manshai Bridge, Cooch Behar State Railway, after the earthquake referred to, is here reproduced in a reduced form.

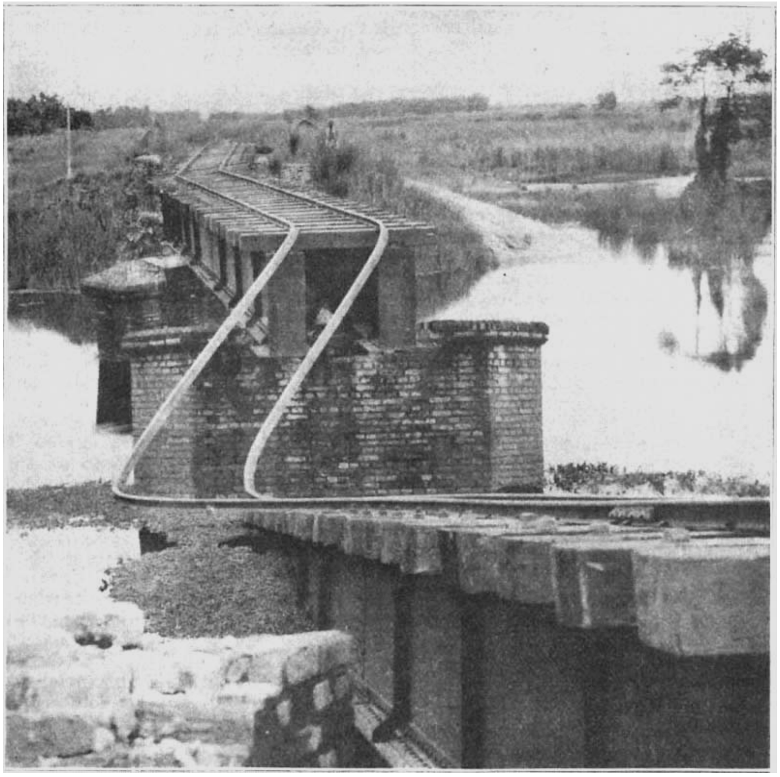

FIG. 1.

This earthquake continues to be the theme of discussion by seismologists. One of the most important papers yet published is that by Dr. Agamennone in the last *Bollettino* (vol. iv., No. 3) of the Italian Seismological Society, of which the following is a summary. At Rome, the early short-period vibrations were first recorded at 11.17 a.m. (G.M.T.), and these lasted until about 11.40, when the long-period pulsations commenced, reaching a maximum at about 11.47½. During the first interval there were five distinct maxima, all of which can be identified with those on the records from other observatories. After 11.47½ these records fail to show marked features in common, and the movement dies away more or less slowly according to the sensitiveness of the instrument employed. At Calcutta, the duration of the earthquake is variously estimated at from four to ten minutes, and at Shillong, which is close to the epicentre, at two minutes. In Europe, the duration of the disturbance, according to magnetograph records, was about half an hour at St. Petersburg, 1¼ hours at Wilhelmshaven, and 2¼ hours at Utrecht; and, according to those of different Italian seismometrographs, 1½ hours at Verona, 1¾ hours at Rome, 3 hours at Catania, and 3¼ hours at Padua. At Rome, the period of the earliest vibrations was half a second, but this gradually increased to 3·3 seconds after about 15 minutes. The pulsations which followed had a period of 11 and 10 seconds, in the records of pendulums 16 and 8 metres long, respectively, decreasing to about 8 seconds in both; and it is interesting to notice how closely the different instruments at other observatories agree in this respect. The measures of the maximum tilt of the ground during the passage of the pulsations are less concordant, but the mean of eight good observations in Italy is 12″·4, a value which agrees fairly well with that of 10″ obtained by means of the bifilar pendulum at Edinburgh. Unfortunately, for the calculations of the velocity, the recorded times at Calcutta differ by 2½ minutes, being 11.4½ (La Touche) and 11.7 (Oldham). Dr. Agamennone quotes nineteen European records of the time of the first disturbance, and the five best give a mean velocity of 9 or 11 km. per second, according to the time adopted for Calcutta. For the long-period pulsations, the corresponding estimates are 2·6 and 2·8 km. per second, *i.e.* about one-quarter of the above. Lastly, taking the period of the pulsations at 10 seconds, the velocity at 2·7 km. per second, and the maximum tilt of the ground at 12″, Dr. Agamennone finds the length of a complete pulsation, as it traversed Italy, to be 54 km., and the height of its crest (or amplitude) about half a metre.

BRITISH ASSOCIATION.

CONFERENCE OF THE DELEGATES OF THE CORRESPONDING SOCIETIES.

THE first meeting of the Conference was held at University College, Bristol, on Thursday, September 8, at 3 p.m. The Corresponding Societies' Committee were represented by Mr. W. Whitaker (Chairman), Dr. Garson, Mr. Hopkinson, Prof. Meldola, Mr. G. J. Symons, and Mr. T. V. Holmes (Secretary).

A short report, which was in the hands of every delegate present, contained the following paragraph:—

The Committee observe with satisfaction that the corresponding societies steadily increase in number, and that the total number of the members composing them also increases. For example, in the British Association Report of the Bath meeting in 1888 there is a list of fifty-five corresponding societies, having a total of 18,950 members. The Toronto Report of last year shows sixty-nine corresponding societies, having a total of 22,395 members. On the other hand, the average number of members in each society appears to have slightly decreased, having been between 344 and 345 in 1888, and between 324 and 325 in 1897. But this is accounted for by the collapse of the two federations—the Midland Union and the Cumberland and Westmoreland Association—and the withdrawal of the Royal Scottish Geographical Society between the two periods. For in 1888 these three associations numbered among them 4006 members, as many as would be found in eleven or twelve average societies.

The Committee, while regretting the absence of certain societies whose headquarters are not in London from the list of corresponding societies, add:—Fortunately, in most cases,

©1898 Nature Publishing Group

information as to the titles and authors of papers read before local societies not corresponding societies of the British Association may be obtained from the "Official Year-book of the Scientific and Learned Societies of Great Britain and Ireland" (C. Griffin and Co., London). The "Year-book" appears every spring, and contains lists of papers read in the previous year. It will be found that the "Year-book" and the British Association "Index" combined leave little to be desired by the inquirer after papers on any locality in the British Isles.

The following societies have been added to the list of the corresponding societies:—The Hull Geological Society, the South-Eastern Union of Naturalists' Societies, and the Astronomical and Physical Society of Toronto.

Mr. Whitaker opened the proceedings by introducing the subject of coast erosion. He remarked on the much greater ease and accuracy with which measurements of the amount of loss could be made now that maps on the scale of 6 inches to the mile were obtainable for all parts of the country. He instanced Sheppey as a good example of a place at which loss by coast erosion had been unusually rapid. On the first visit of the Geologists' Association there, the church and churchyard of Warden were untouched; on a later occasion the churchyard was found to have been injured, and coffins were sticking out from the edge of the cliff. That year they had found neither churchyard nor church. They had also seen, during the visit last Whitsuntide of the Geologists' Association to Aldeburgh in Suffolk, an example of another kind of marine encroachment. There they found cottages, sheds and gardens more or less injured or destroyed by the heaping-up of masses of shingle in or against them, the result of a storm in November 1897. The driving inland of blown sand also caused much injury to land on the coast in certain localities. As to the economical aspect of the question, there were certainly many places from which the removal of shingle from the shore should never be allowed. Indeed it should nowhere be allowed without careful consideration as to the probable result. And the quarrying of stone on the face of a sea-cliff should seldom, if ever, be permitted.

Mr. W. H. Wheeler thought that the movement of shingle along our shores was due to the action of the tides, not of the winds. Mr. A. T. Walmisley had always advocated the protection of the shore by groynes. Sea walls should be placed a short distance in front of the cliff to be protected. Mr. Vaughan Cornish said that the protection of one part of the shore was a bad thing for the rest of the district. He thought that no local shore protection should be allowed unless sanctioned by a Government Board. In any study of the effects of coast erosion the coast-guard, if the Admiralty gave their consent, would be able to render most valuable assistance. Mr. Wheeler thought the retention of a mass of shingle in front of a place a better protection than a sea wall. He would greatly approve of an attempt to obtain the services of the coast-guard in noting coast erosion, as at present he had found it very difficult to get trustworthy evidence. Prof. Meldola moved the following resolution:—"That the Council of the British Association be requested to bring under the notice of the Admiralty the importance of securing systematic observations upon the erosion of the sea coasts of the United Kingdom, and that the co-operation of the coast-guard might be profitably secured for this purpose." After some discussion the resolution was seconded by Mr. Gray, and carried.

Prof. Meldola read a letter from Prof. W. W. Watts, stating that the Geological Photographs Committee had formed a collection of duplicate photographs and lantern slides, consisting of about 250 prints and 100 lantern slides, which could be sent during the winter to any local scientific society wishing to make use of them.

Second Meeting of the Conference, September 13.

The Corresponding Societies Committee were represented by Mr. Whitaker, Dr. Garson, Rev. J. O. Bevan, Mr. Hopkinson, Mr. Symons, and Mr. T. V. Holmes (Secretary).

The Chairman (Mr. Whitaker) announced that the resolution on coast erosion, passed at their last meeting, had been submitted to the Geological and Geographical Sections, both of which had unanimously supported the recommendations contained in it. It would now be forwarded to the Council.

Prof. Silvanus Thompson had been asked to bring before the Conference the importance of adopting one or two uniform standard sizes for the pages of scientific publications. All engaged in scientific investigation were greatly indebted to their fellow workers for reprinted papers, and all recognised the advantage given by uniformity of size in allowing these papers to be bound together. The great advantages of uniformity in size had caused the formation of a British Association Committee some four years ago, whose object was to prescribe the adoption of certain standard octavo and quarto sizes. The report of this Committee would be found in the Ipswich Report (1895), p. 77. The standard octavo size there recommended was—

Paper demy, pages measuring when uncut 5⅝ inches by 8¾ inches. The width, measured from the stitching to the edge of the printed matter, to be 4⅝ inches, and the height of the printed portion, including the running head-line, to be 7 inches.

The standard quarto size. Paper demy, the pages measuring when uncut 8¾ inches wide by 11 inches high. Letterpress not to exceed the measurements of 7½ inches by 9 inches. It was also desirable that each article should begin a page, and, if practicable, the right-hand page. It can then be bound with other articles without the last page of a preceding article being bound up with it. Many other details would be found in the Report of the Committee, with illustrations.

Prof. Meldola said that a glance at the shelves at Burlington House, on which the publications of the corresponding societies were collected, showed a considerable amount of diversity in size. Some societies also did themselves injustice as regards paper and printing. Mr. Hopkinson thought that the chief offenders were societies which, from want of sufficient funds, published reprints from local newspapers.

Section A.

Mr. G. J. Symons said that Prof. Milne was making important observations on earthquake tremors in an unsatisfactory house in the Isle of Wight. It had been suggested that there were houses in Richmond Park suitable for the purpose, and that it might be well to approach the Government and try to obtain one for him. Or perhaps some rich man might lend Prof. Milne a house for a few years.

Section C.

Mr. Beeby Thompson said that a fine specimen of a Dinosaur had recently been discovered near Northampton. It would, however, be a very expensive work to uncover it carefully, and he wished either to obtain a grant from the British Association for that purpose, or to induce any rich people who might hear of the case to assist in providing funds.

The Chairman thought that the matter should be brought before the scientific societies of Northampton.

Section H.

The Chairman directed the attention of the Conference to the Ethnographical Survey, an investigation in which few local societies were co-operating.

Mr. Hartland, Secretary of the Ethnographical Survey Committee, said that it would greatly help his Committee if each of the corresponding societies would take up one or more branches of the inquiry. He had explained at previous Conferences that it was by no means necessary that all branches should be taken up everywhere. He would be happy to send to all the corresponding societies all the information they might require for the purpose of carrying on the work.

The Chairman hoped that the delegates would give some account to their respective societies of the discussions which had taken place at the Conference.

The proceedings then terminated.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

Prof. Röntgen has decided not to accept the call to the University of Leipzig as the successor of Prof. Wiedermann, who has retired, at the age of seventy-two.

It is announced that the Queen has conferred a knighthood on Mr. W. C. McDonald, who provided the funds for the chemistry wing to the McGill University, Montreal, which was opened on Tuesday, and has made other generous gifts to the University.

©1898 Nature Publishing Group